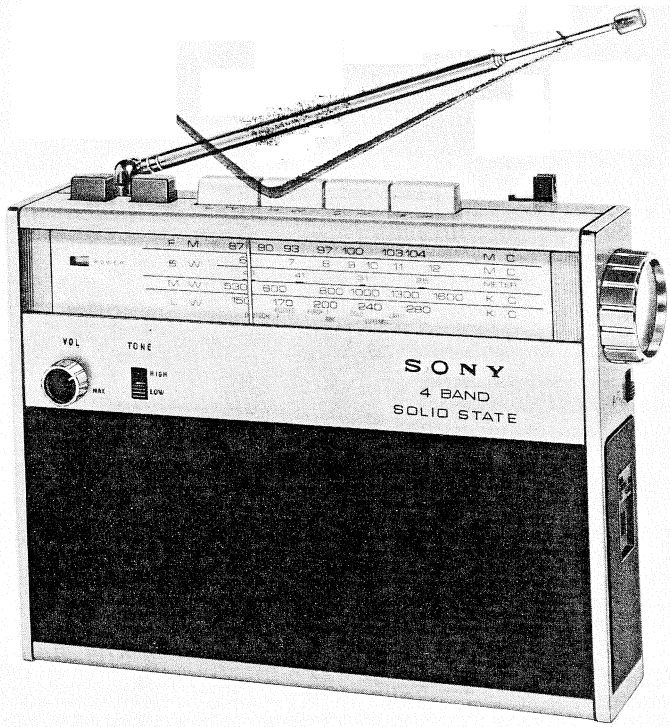
5F-94L

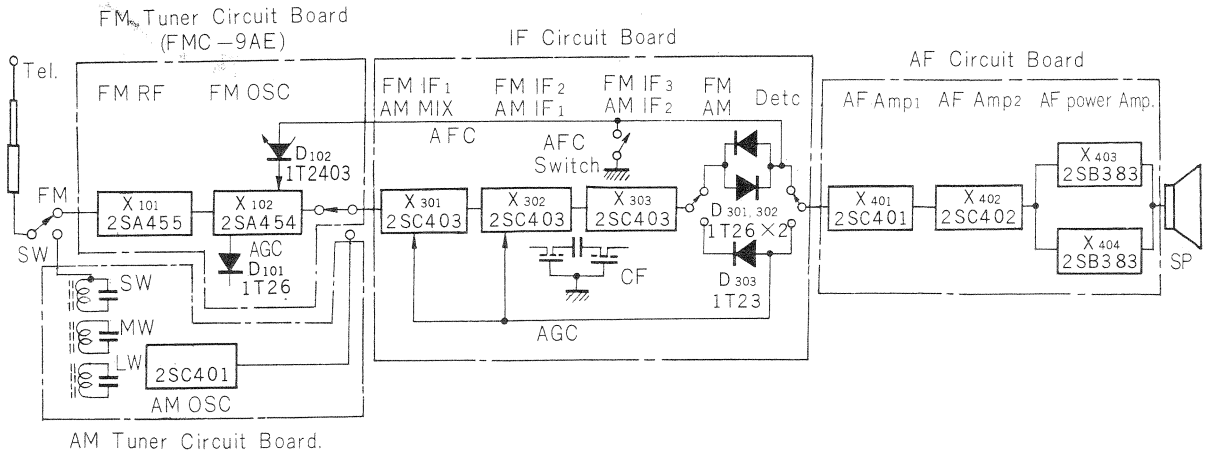


Specifications

Circuit:	10 Transistor Superheterodyne
Frequency Coverage:	FM 87~104 Mc (3.44~2.89 m)
	SW 5.9~12 Mc (50.8~25 m)
	MW 530~1,605 Kc (566~187 m)
	LW 150~285 Kc (2.000~1.053 m)
Intermediate Frequency:	FM 10.7 Mc AM 455 Kc
Antenna System:	FM and SW Built-in Telescopic Antenna
	MW and LW Built-in Ferrite Bar Antenna
Maximum Sensitivity: (at 10 mW output)	FM 1.8μV
	SW 4μV
	MW 70μV/m
	LW 130μV/m
Selectivity:	30 dB at 10 Kc off resonance, at 1,400 Kc
Output Power:	320 mW (undistorted)
	500 mW (maximum)
Current Drain:	17 mA (FM) 13 mA (AM) 130 mA at 320 mW output
Speaker:	6.5×10 cm (2-1/2×4") PM dynamic, 8Ω
Power Source:	Three "C" Size Flashlight
	Batteries 4.5 V in total
Dimensions:	139 (H)×181 (W)×53 (D) mm
	(5-1/2×7-1/8×2-1/8")
Weight:	0.95 kg. (2.2 lbs.)

SONY®
SERVICING GUIDE

Block Diagram



Frequency Coverage and Tracking Adjustment

Adj. Item	SSG (Standard Signal Generator) Coupling	SSG Freq.	Receiving Dial Setting	Connect VTVM	Adjust	Remarks
FM Frequency Coverage	SSG — R — Rec R=100 -Rs (Ω) where Rs: Output impedance of SSG.	86 Mc (400 c/s ±22.5 Kc FM MOD.)	Fully Left	Across 8Ω Load Resistor	FM OSC Coil (L_{104})	Adjust for maximum deflection Tone, High Volume, max. power supply 4.5V
		105.5 Mc (〃)	Fully Right		FM OSC Trimmer (C_{1-4})	
FM Tracking	—ditto—	86 Mc (〃)	Tune to 86 Mc Signal	—ditto—	FM RF Coil (L_{102})	—ditto—
		105.5 Mc (〃)	Tune to 105.5Mc Signal		FM ANT Trimmer (C_{1-3})	
SW Frequency Coverage	SSG — 10PF — Rec Unsolder a Red lead from the Telescopic Antenna	5.75 Mc (1000 c/s 30% AM MOD)	Fully Left	—ditto—	SW OSC Coil (L_{206})	—ditto—
		12.6 Mc (〃)	Fully Right		SW OSC Trimmer (C_{219})	
SW Tracking	—ditto—	5.75 Mc (〃)	Tune to 5.75Mc Signal	—ditto—	SW ANT Coil (L_{203})	—ditto—
		12.6 Mc (〃)	Tune to 12.6Mc Signal		SW ANT Trimmer (C_{204})	
MW Frequency Coverage	Loop Antenna	520 Kc (〃)	Fully Left	—ditto—	MW OSC Coil (L_{205})	—ditto—
		1680 Kc (〃)	Fully Right		MW OSC Trimmer (C_{217})	
MW Tracking	—ditto—	620 Kc (〃)	Tune to 620 Kc Signal	—ditto—	MW ANT Coil (L_{202})	—ditto—
		1400 Kc (〃)	Tune to 1400Kc Signal		MW ANT Trimmer (C_{207})	
LW Frequency Coverage	—ditto—	145 Kc (〃)	Fully Left	—ditto—	LW OSC Coil (L_{204})	—ditto—
		300 Kc (〃)	Fully Right		LW OSC Trimmer (C_{214})	
LW Tracking	—ditto—	160 Kc (〃)	Tune to 160 Kc Signal	—ditto—	LW ANT Coil (L_{201})	—ditto—
		280 Kc (〃)	Tune to 280 Kc Signal		LW ANT Trimmer (C_{227})	

Removal of Chassis

(1) Remove the Volume Control Knob and the Tuning Knob by pulling them straight out.
(2) Remove the four Back Cover Holding Screws to remove the Back Cover.
(3) Take out all the Batteries.
(4) Unsolder a Red Lead going to the Telescopic Antenna Terminal.
(5) Remove the two Jack Holder Screws marked with ☆ shown in Fig. 2.
(6) Remove the four Screws marked with ○ shown in Fig. 3.
(7) Unsolder the two Leads (a Black, a Gray) at the Speaker.
(8) Unsolder the two Leads (a Red, a Gray) coming from the Dial Lamp.
(9) Take out the Chassis from the Cabinet gently taking care not to cut the Leads.

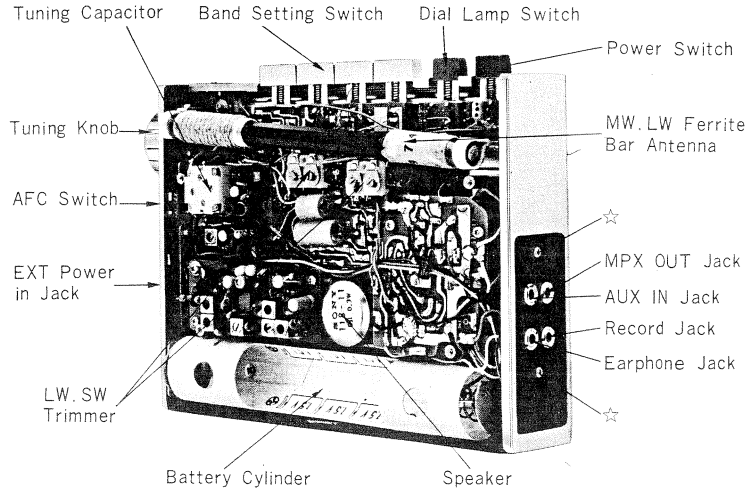


Fig. 2

Removal of FM Tuner Circuit Board

(1) Unsolder the three Leads at the Tuning Capacitor.
(2) Remove the Screw marked with △ shown in Fig. 3.

Removal of AM Tuner Circuit Board

(1) Remove the Ferrite Bar Antenna from Antenna Holder.
(2) Remove the two Screws marked with ※ shown in Fig. 3.
(3) Unsolder the Circuit Board Holder marked with ● shown in Fig. 3.
(4) Unsolder all the leads going from it to other points and it can be now removed.

Removal of IF Circuit Board

(1) Remove the three Screws marked with □ shown in Fig. 3.

Removal of AF Circuit Board

(1) Remove the two Screws marked with ◬ shown in Fig. 3.
(2) Unsolder the R_{413}, C_{327} and AF Circuit Board Holder marked with ▲ shown in Fig. 3.

Interior View

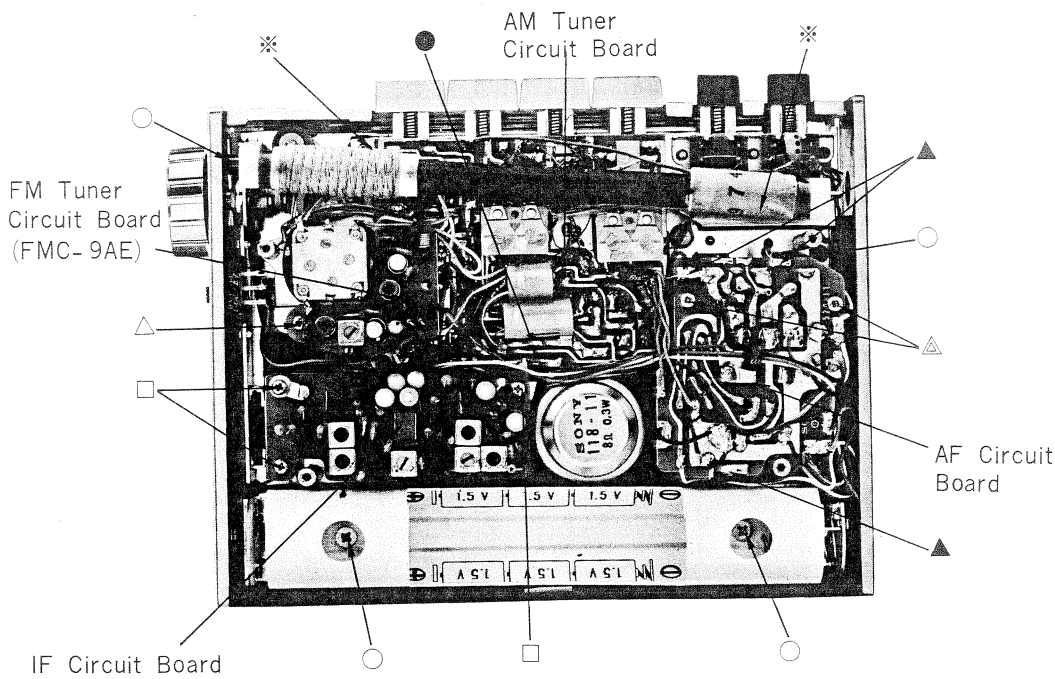
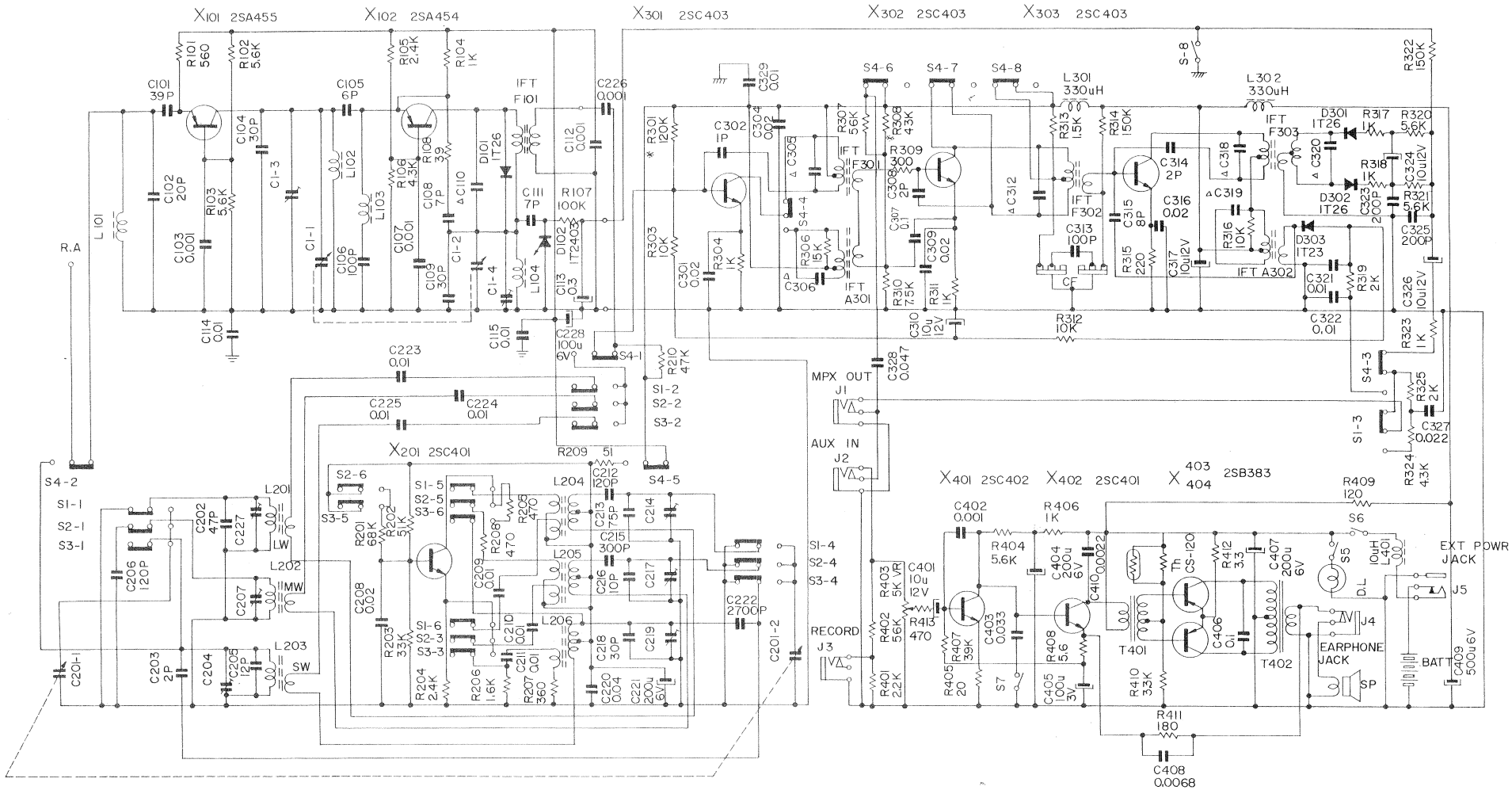


Fig. 3.

Circuit Schematic



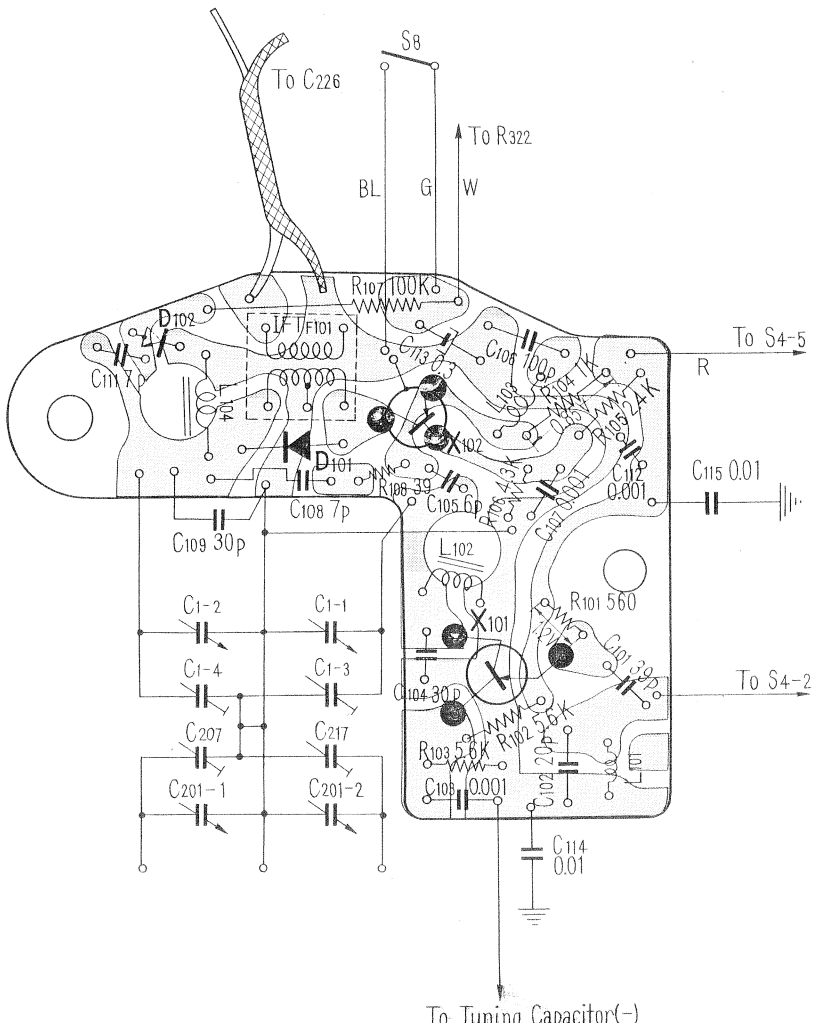
※ To be Adjusted.

Capacitors marked with "Δ" are built in relative IF Transformers.

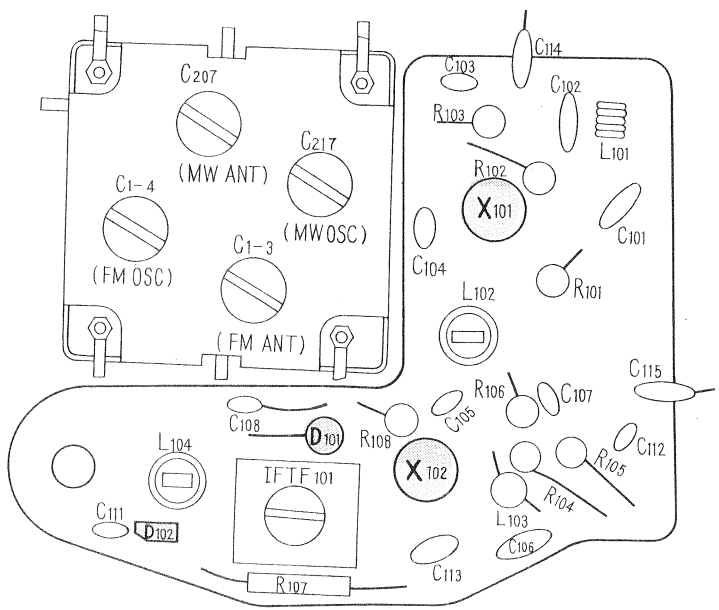
Mounting Diagram

FM Tuner Section (FMC-9AE)

— Printed Side —



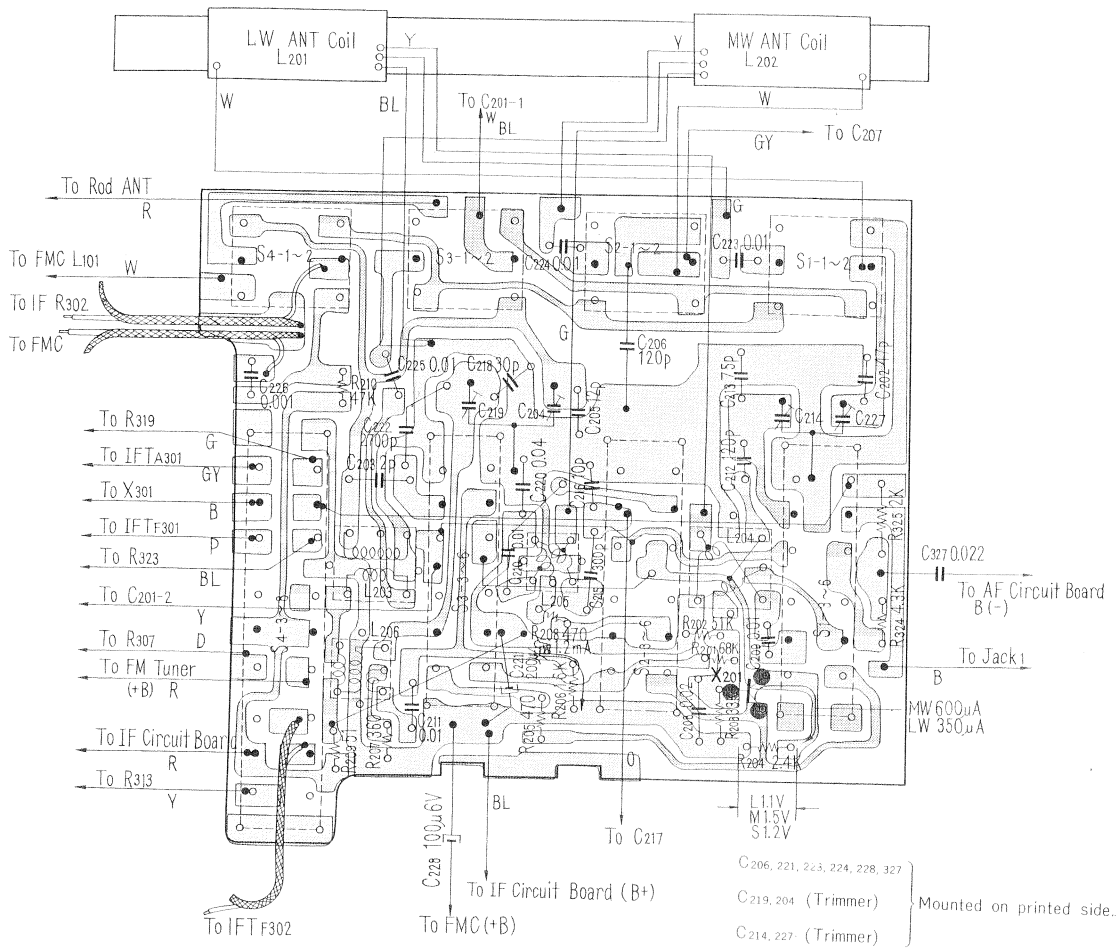
— Parts Side —



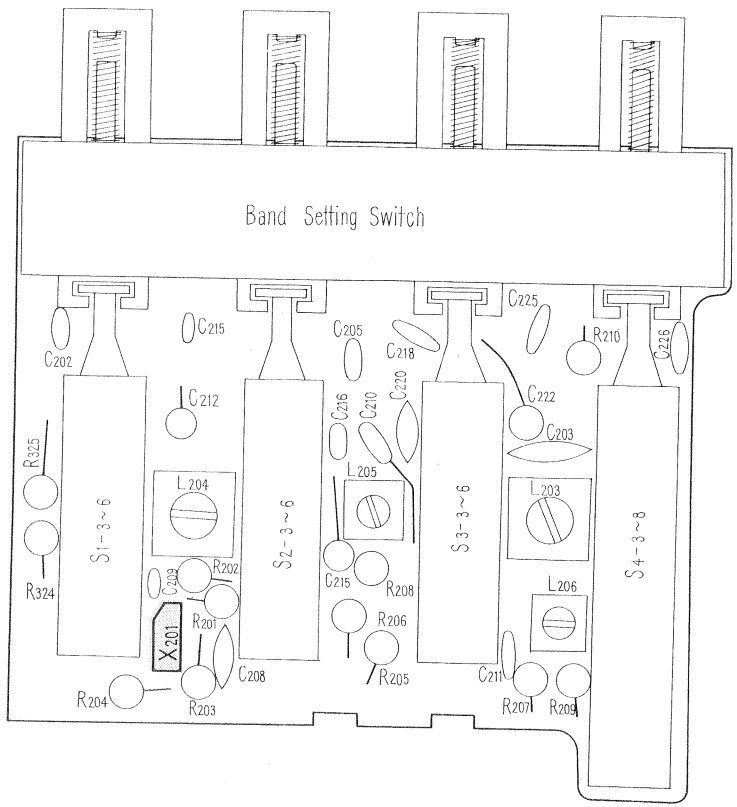
Mounting Diagram

AM Tuner Section

—Printed Side—

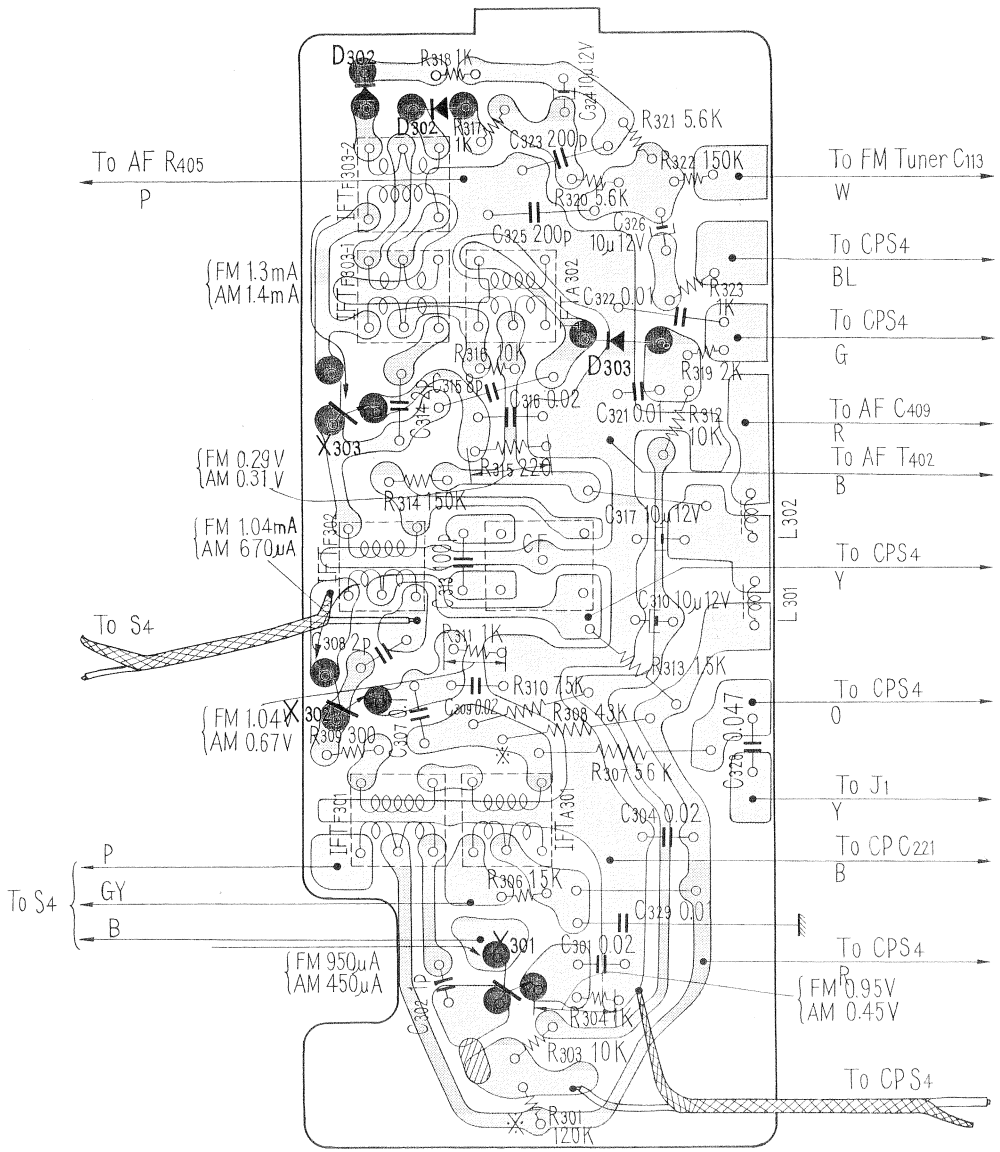


—Parts Side—



IF Section

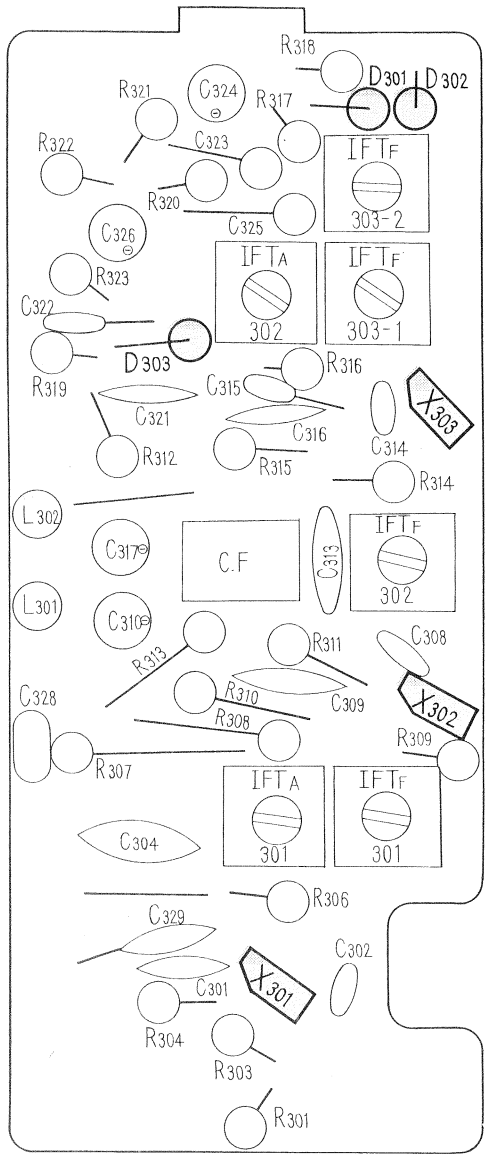
—Printed Side—



※ To be Adjusted

C 307 Mounted on printed side.

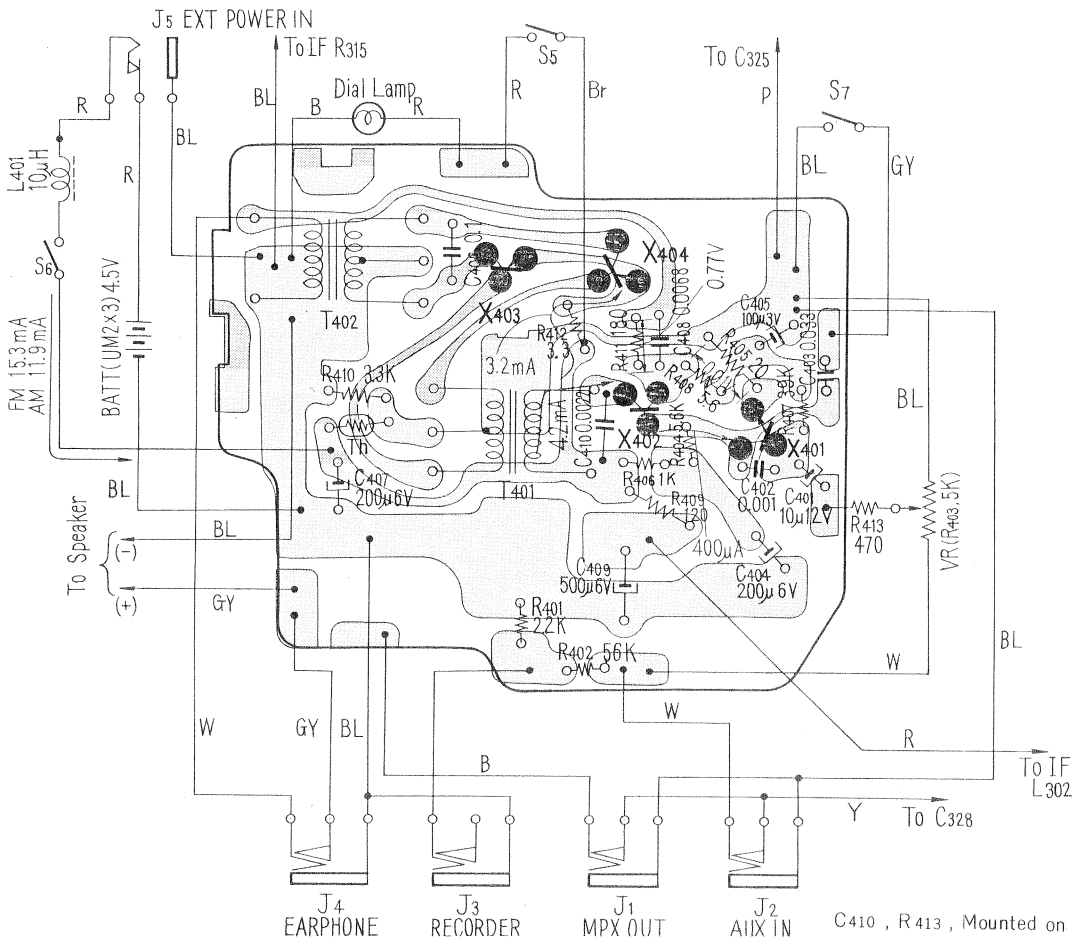
—Parts Side—



Mounting Diagram

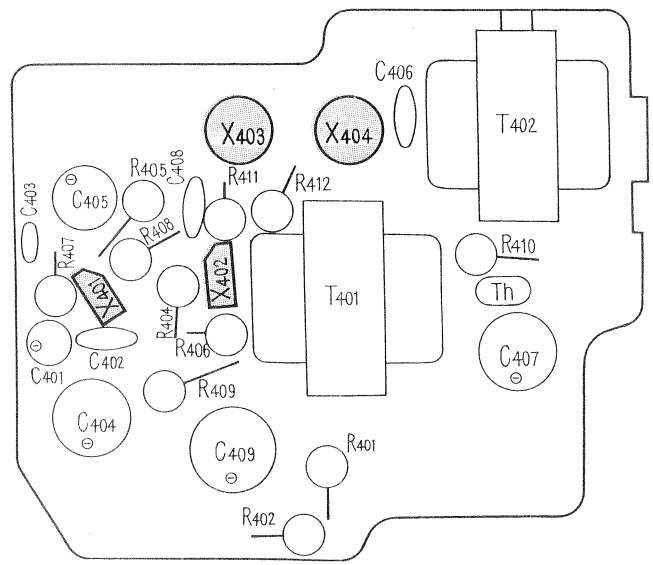
AF Section

— Printed Side —



C410 , R413 , Mounted on printed side.

— Parts Side —



Electrical Parts List

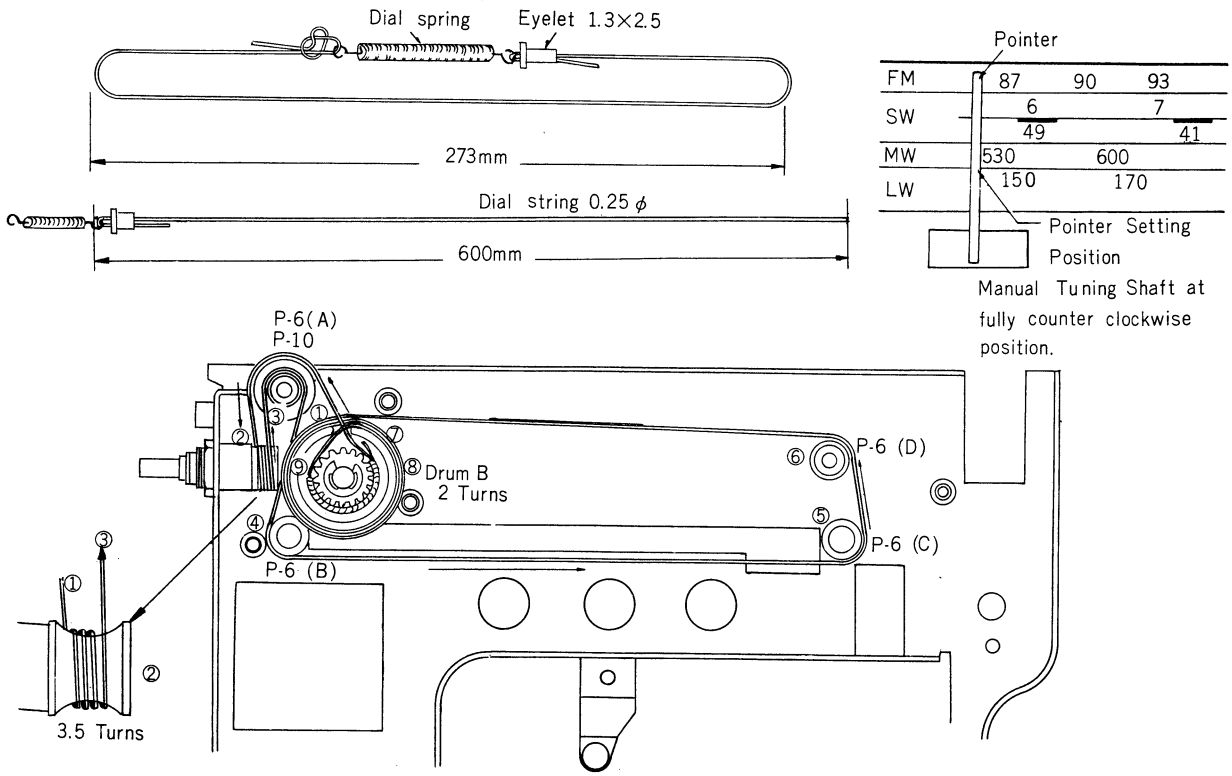
Part No.	Symbol	Description
1-501-046-12	R. A.	Telescopic Antenna
1-401-228-11	L_{101}	FM Antenna Coil
1-425-275-11	L_{102}	FM RF Coil
1-407-101-11	L_{103}	IF Trap Coil 22μH
1-405-294-11	L_{104}	FM OSC Coil
1-401-292-11	L_{201}	LW Ferrite Bar Antenna
	L_{202}	MW 〃
-262-11	L_{203}	SW Antenna Coil
1-405-269-11	L_{204}	LW OSC Coil
-268-12	L_{205}	MW 〃
-270-11	L_{206}	SW 〃
1-407-050-11	L_{301}	Micro Inductor 330μH
-050-11	L_{302}	〃 330μH
-037-11	L_{401}	〃 10μH
1-403-242-11	IFT_{F101}	FM IF Transformer (Single Tuned)
-243-15	IFT_{F301}	〃 〃
-244-15	IFT_{F302}	〃 〃
-272-15	IFT_{F303-1}	FM Discriminator (primary)
-273-15	IFT_{F303-2}	〃 (secondary)
-126-11	IFT_{A301}	AM IF Transformer (Single Tuned)
-152-11	IFT_{A302}	〃 〃
1-423-073-21	T_{401}	Driver Transformer
1-427-122-11	T_{402}	Output 〃
1-513-302-11	$S_{1-3\sim6}$	Slide Switch (LW)
-302-11	$S_{2-3\sim6}$	〃 (MW)
-302-11	$S_{3-3\sim6}$	〃 (SW)
-239-11	$S_{4-3\sim8}$	〃 (FM)
1-514-261-11	S_5	Switch, Dial Lamp
	S_6	〃 ON-OFF
1-513-222-21	S_7	〃 Tone
-222-21	S_8	〃 AFC
1-507-169-11	J_1	Jack, Multiplex Out
-169-11	J_2	〃 AUX IN
-169-11	J_3	〃 Record
-169-11	J_4	〃 Earphone
-127-12	J_5	〃 EXT Power
1-518-006-02	DL	Dial Lamp
1-502-118-11	SP	Speaker
1-403-153-11	CF	Ceramic Filter
1-528-002-01	Batt	Battery UM-2×3 4.5V in total
	X_{101}	Transistor 2SA455
	X_{102}	〃 2SA454
	X_{201}	〃 2SC401
	X_{301}	〃 2SC403
	X_{302}	〃 2SC403
	X_{303}	〃 2SC403
	X_{401}	〃 2SC402
	X_{402}	〃 2SC401
	X_{403}	〃 2SB383
	X_{404}	〃 2SB383
	D_{101}	Diode 1T26
	D_{102}	〃 1T2403
	D_{301}	〃 1T26
	D_{302}	〃 1T26
	D_{303}	〃 1T23
	Th	Thermistor CS-120
		Resistor
1-201-872-11	R_{101}	560Ω 1/8W Composition
-864-11	R_{102}	5.6KΩ 〃 〃
-864-11	R_{103}	5.6KΩ 〃 〃
-862-11	R_{104}	1KΩ 〃 〃
-828-11	R_{105}	2.4KΩ 〃 〃
-871-11	R_{106}	4.3KΩ 〃 〃
-868-11	R_{107}	100KΩ 〃 〃
-839-11	R_{108}	39Ω 〃 〃
1-244-517-11	R_{201}	68KΩ 〃 Carbon
-514-11	R_{202}	51KΩ 〃 〃
-509-11	R_{203}	33KΩ 〃 〃

Part No.	Symbol	Description
1-244-482-11	R_{204}	2.4KΩ 1/8W Carbon
-465-11	R_{205}	470Ω 〃 〃
-478-11	R_{206}	1.6KΩ 〃 〃
-462-11	R_{207}	360Ω 〃 〃
-465-11	R_{208}	470Ω 〃 〃
-442-11	R_{209}	51Ω 〃 〃
-513-11	R_{210}	47KΩ 〃 〃
-523-11	*R_{301}	120KΩ 〃 〃
	R_{302}	—deleted—
1-244-497-11	R_{303}	10KΩ 1/8W Carbon
-473-11	R_{304}	1KΩ 〃 〃
	R_{305}	—deleted—
1-244-501-11	R_{306}	15KΩ 1/8W Carbon
-515-11	R_{307}	56KΩ 〃 〃
-512-11	*R_{308}	43KΩ 〃 〃
-460-11	R_{309}	300Ω 〃 〃
-494-11	R_{310}	7.5KΩ 〃 〃
-473-11	R_{311}	1KΩ 〃 〃
-497-11	R_{312}	10KΩ 〃 〃
-477-11	R_{313}	1.5KΩ 〃 〃
-525-11	R_{314}	150KΩ 〃 〃
-457-11	R_{315}	220Ω 〃 〃
-497-11	R_{316}	10KΩ 〃 〃
-473-11	R_{317}	1KΩ 〃 〃
-473-11	R_{318}	1KΩ 〃 〃
-480-11	R_{319}	2KΩ 〃 〃
-491-11	R_{320}	5.6KΩ 〃 〃
-491-11	R_{321}	5.6KΩ 〃 〃
-525-11	R_{322}	150KΩ 〃 〃
-473-11	R_{323}	1KΩ 〃 〃
-488-11	R_{324}	4.3KΩ 〃 〃
-480-11	R_{325}	2KΩ 〃 〃
1-201-863-11	R_{401}	2.2KΩ 〃 Composition
1-202-085-11	R_{402}	56KΩ 〃 〃
1-221-805-11	R_{403}	5KΩ Volume Control
1-201-864-11	R_{404}	5.6KΩ 1/8W Composition
-951-11	R_{405}	20Ω 〃 〃
-862-11	R_{406}	1KΩ 〃 〃
-695-11	R_{407}	39KΩ 〃 〃
-894-11	R_{408}	5.6Ω 〃 〃
-982-11	R_{409}	120Ω 〃 〃
-860-11	R_{410}	3.3KΩ 〃 〃
-829-11	R_{411}	180Ω 〃 〃
-874-11	R_{412}	3.3Ω 〃 〃
1-244-465-11	R_{413}	470Ω 〃 Carbon
		Capacitor
1-151-093-11	$C_{1-1\sim2}$	FM Tuning Capacitor, 4 gang
	$C_{1-3\sim4}$	FM Trimmer, 2 unit
1-101-876-11	C_{101}	39pF Ceramic
-864-11	C_{102}	20pF 〃
-918-11	C_{103}	0.001μF 〃
-871-11	C_{104}	30pF 〃
-956-11	C_{105}	6pF 〃
-896-11	C_{106}	100pF 〃
-918-11	C_{107}	0.001μF 〃
-957-11	C_{108}	7pF 〃
-871-11	C_{109}	30pF 〃
	C_{110}	100pF (Built in IFT_{F101})
1-101-957-11	C_{111}	7pF Ceramic
-918-11	C_{112}	0.001μF 〃
1-127-021-11	C_{113}	0.3μF Alox
1-101-141-11	C_{114}	0.01μF Ceramic
-141-11	C_{115}	0.01μF 〃
1-151-093-11	$C_{201-1\sim2}$	AM Tuning Capacitor
1-101-880-11	C_{202}	47pF Ceramic
-952-11	C_{203}	2pF 〃
1-141-127-11	C_{204}	Trimmer, 2 unit (SW) Ant.
1-101-961-11	C_{205}	12pF Ceramic
1-103-603-11	C_{206}	120pF Styrol
1-151-093-11	C_{207}	Trimmer, 4 unit (MW) Ant

* To be adjustable

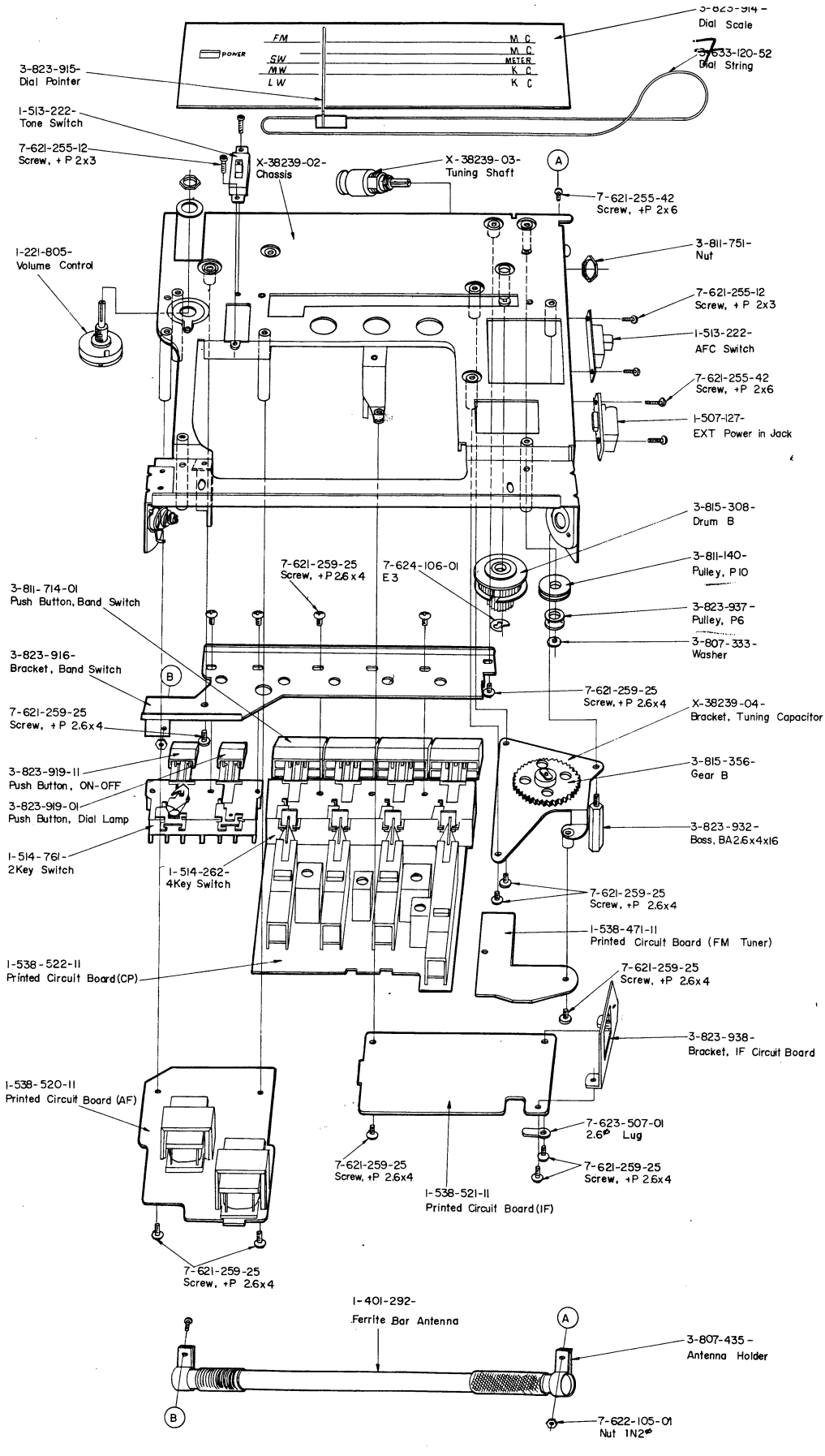
Part No.	Symbol	Description	Part No.	Symbol	Description
1-101-142-11	C_{208}	0.02μF Ceramic	1-121-307-11	C_{310}	10μF 12V Electrolytic
1-105-411-12	C_{209}	0.01μF Mylar		C_{311}	—deleted—
-411-12	C_{210}	0.01μF 〃		C_{312}	(Built in IFT$_{F302}$)
-411-12	C_{211}	0.01μF 〃	1-101-896-11	C_{313}	100pF Ceramic
1-103-603-11	C_{212}	120pF Styrol	-952-11	C_{314}	2pF 〃
1-101-809-11	C_{213}	75pF Ceramic	-958-11	C_{315}	8pF 〃
1-141-127-11	C_{214}	Trimmer 2 unit (LW) Osc	-142-11	C_{316}	0.02μF 〃
1-103-612-11	C_{215}	300pF Styrol	1-121-307-11	C_{317}	10μF 12V Electrolytic
1-101-959-11	C_{216}	10pF Ceramic		C_{318}	(Built in IFT$_{F303}$)
1-151-093-11	C_{217}	Trimmer, 2 unit (MW) Osc		C_{319}	(Built in IFT$_{A302}$)
1-101-871-11	C_{218}	30pF Ceramic		C_{320}	(Built in IFT$_{F303}$)
1-141-127-11	C_{219}	Trimmer, 2 unit (SW) Osc	1-105-411-12	C_{321}	0.01μF Mylar
1-101-143-11	C_{220}	0.04μF Ceramic	-411-12	C_{322}	0.01μF 〃
1-121-318-11	C_{221}	200μF 6V Electrolytic	1-103-608-11	C_{323}	200pF Styrol
1-103-635-11	C_{222}	2700pF Styrol	1-121-307-11	C_{324}	10μF 12V Electrolytic
1-101-141-11	C_{223}	0.01μF Ceramic	1-103-608-11	C_{325}	200pF Styrol
-141-11	C_{224}	0.01μF 〃	1-121-307-11	C_{326}	10μF 12V Electrolytic
-141-11	C_{225}	0.01μF 〃	1-105-413-12	C_{327}	0.022μF Mylar
-918-11	C_{226}	0.001μF 〃	-415-12	C_{328}	0.047μF 〃
1-141-127-11	C_{227}	Trimmer, 2 unit (LW) Ant	1-101-146-11	C_{329}	0.01μF Ceramic
1-121-291-11	C_{228}	100μF 6V Electrolytic	1-121-307-11	C_{401}	10μF 12V Electrolytic
1-101-142-11	C_{301}	0.02μF Ceramic	1-105-821-12	C_{402}	0.001μF Mylar
-951-11	C_{302}	1pF 〃	-414-12	C_{403}	0.033μF 〃
	C_{303}	—deleted—	1-121-318-11	C_{404}	200μF 6V Electrolytic
1-101-142-11	C_{304}	0.02μF Ceramic	-314-11	C_{405}	100μF 3V 〃
	C_{305}	(Built in IFT$_{F301}$)	1-105-417-12	C_{406}	0.1μF Mylar
	C_{306}	(Built in IFT$_{A301}$)	1-121-318-11	C_{407}	200μF 6V Electrolytic
1-101-797-11	C_{307}	0.1μF Ceramic	1-105-831-12	C_{408}	0.0068μF Mylar
-952-11	C_{308}	2pF 〃	1-121-359-11	C_{409}	500μF 6V Electrolytic
-142-11	C_{309}	0.02μF 〃	1-105-825-12	C_{410}	0.0022μF Mylar

Dial Cord Stringing



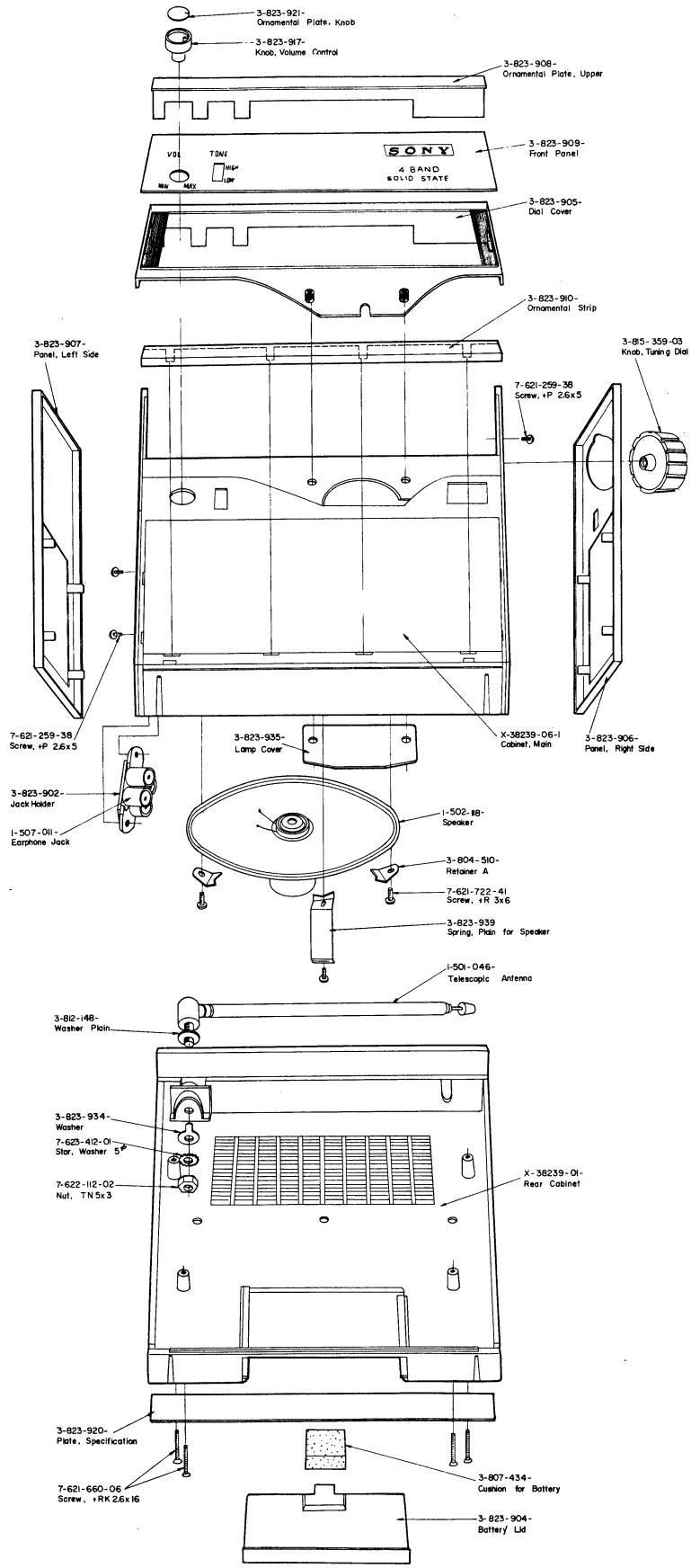
Exploded Diagram

—Chassis—



Exploded Diagram

—Cabinet—



SONY CORPORATION

SONY®
SERVICE MANUAL

5F-94L

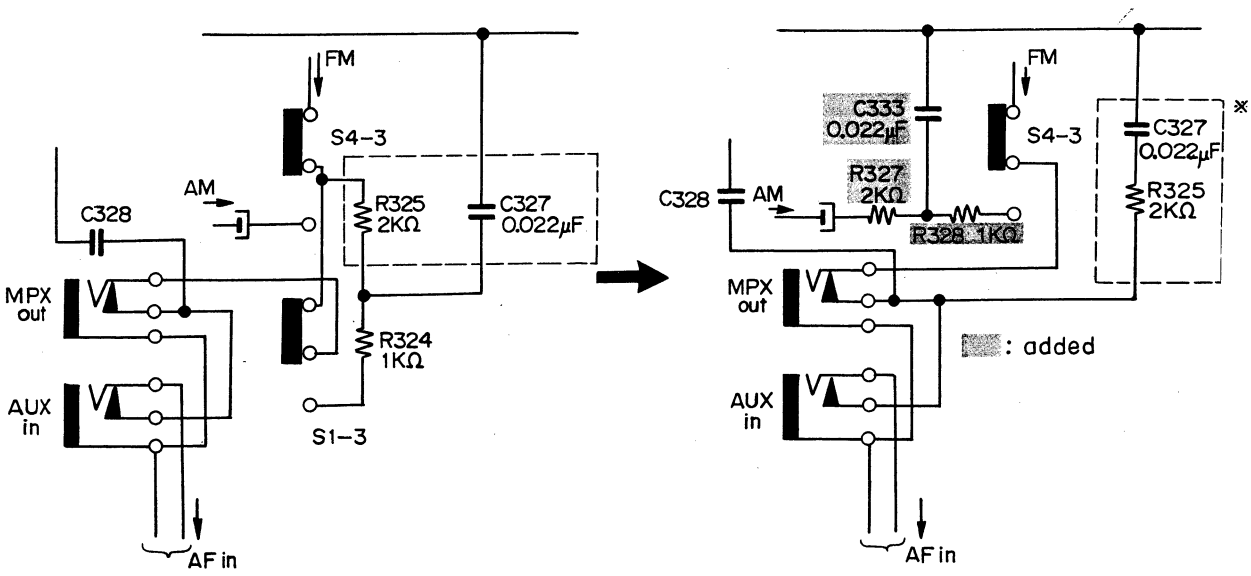
SUPPLEMENT

No. 2
JUNE '70

Applicable Serial No.: 45,001 and later
Subject: Minor change of Model 5F-94L

CHANGE OF DE-EMPHASIS CIRCUIT

In former circuit de-emphasis circuit consists of R325 and C327, and i-f filter (high-cut filter) consists of R325, R324 and C327. De-emphasis circuit and i-f filter are separated to improve the channel separation in new circuit.



Former circuit *New circuit*

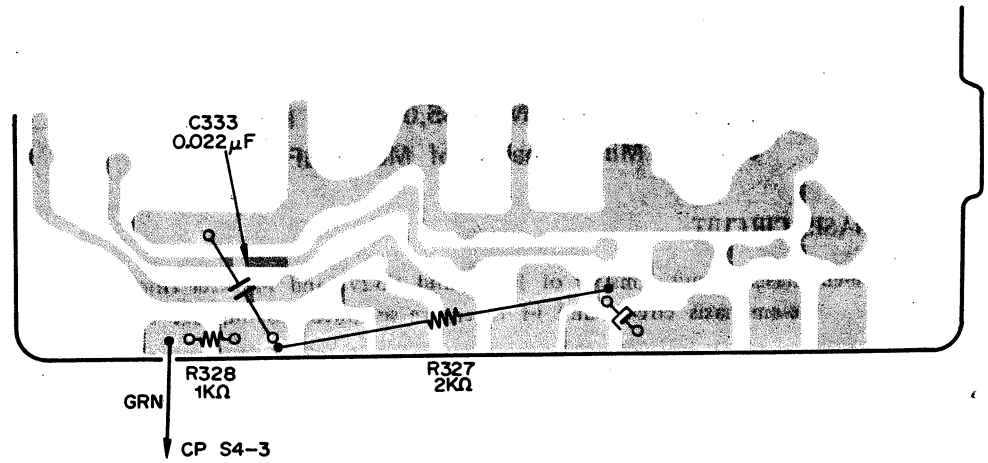
Parts List

Description	Ref. No.	Part No. (new)	Part No. (former)	Remarks
2kΩ resistor, carbon	R327	1-244-680-		added
1kΩ resistor, carbon	R328	1-244-673-		added
0.022μF capacitor, mylar	C333	1-105-413-12		added
1kΩ resistor, carbon	R324		1-244-473-	discarded
2kΩ resistor, carbon		1-538-521-16	1-538-521-15	changed
0.022μF capacitor, mylar		1-538-520-12	1-538-520-11	changed
Printed circuit board (IF)	R325	1-244-680-		transferred※
Printed circuit board (AF)	C327	1-105-413-12		transferred※

Note: The marks ※ indicate that R325 and C327 are transferred from the a-m tuner section to the af section.

Mounting Diagram

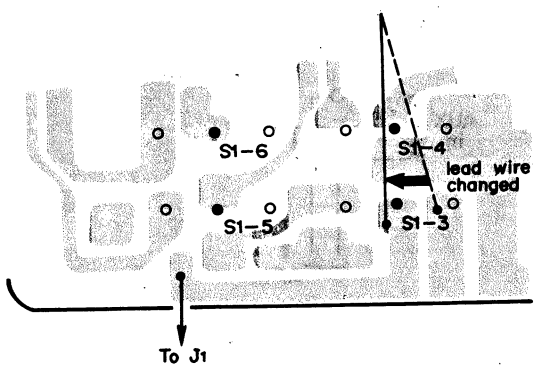
(1) IF Circuit Board



Note:

1. Printed circuit board, Part No.: 1-538-521-16
2. R327, R328 and C333 are added (R327 on the conductor side).
3. Green lead wire is changed in connection.

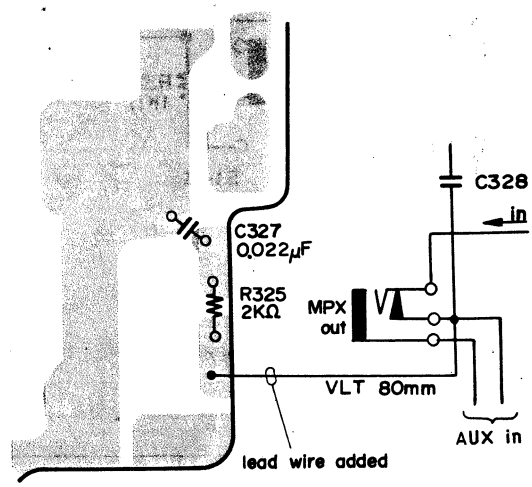
(2) AM Tuner Section



Note:

1. Printed circuit board, Part No.: 1-538-522-11
2. R324 is discarded.
3. R325 and C327 are transferred to af section.

(3) AF Circuit Board



Note:

1. Printed circuit board, Part No.: 1-538-520-12
2. C327 and R325 are transferred from a-m tuner section.
3. A lead wire is added.